CLAIMS

WE CLAIM

1. A slider assembly comprising a plurality of sliders bonded by a debondable solid encapsulant, wherein the encapsulant is comprised of styrene and acrylate polymers, each slider has a surface that is free from the encapsulant, and the encapsulant-free surfaces are substantially coplanar to each other.

2. The slider assembly of claim 1, having a contiguous planar surface comprised of at least one encapsulant region and containing the coplanar slider surfaces.

3. The slider assembly of claim 2, wherein the sliders are arranged in an array.

4. The slider assembly of claim 3, wherein the array is a rectilinear array.

5. The slider assembly of claim 4, wherein the sliders do not contact each other.

6. The slider assembly of claim 4, wherein the substantially coplanar surfaces of the sliders are each an air-bearing surface.

7. The slider assembly of claim 6, further comprising a substrate in contact with the air-bearing surfaces.

8. The slider assembly of claim 7, wherein the substrate is comprised of a laminate of a flexible tape and an adhesive, wherein the adhesive is in contact with the air-bearing surfaces.

9. The slider assembly of claim 8, wherein the adhesive is a pressure sensitive adhesive.

10. The slider assembly of claim 8, wherein the adhesive preferentially adheres to the tape over the air-bearing surfaces.

11. The slider assembly of claim 4, wherein the encapsulant does not substantially outgas under vacuum.

12. The slider assembly of claim 4, further comprising a carrier attached to the encapsulant and/or at least one slider, wherein the carrier does not cover any of the coplanar slider surfaces.

13. The slider assembly of claim 6, further comprising a resist layer on the air-bearing surfaces, wherein the encapsulant is mechanically stable upon exposure to the resist layer or any component thereof.

14. The slider assembly of claim 13, wherein the encapsulant is subject to solvation by a solvent not found in the resist layer.

15. The slider assembly of claim 16, wherein the solvent is comprised of a nonpolar solvent.

16. The slider assembly of claim 4, wherein the styrene polymer is a hydrogenated styrene copolymer.

17. The slider assembly of claim 16, wherein the acrylate polymer is prepared via *in situ* polymerization of acrylate monomers.

18. The slider assembly of claim 17, wherein the acrylate polymer is prepared via photoinitiated polymerization of acrylate monomers.

19. The slider assembly of claim 16, wherein the hydrogenated styrene copolymer has a softening temperature of about 70°C to about 150°C.

20. The slider assembly of claim 19, wherein the softening temperature is at least about 130°C.

21. A method for forming a slider assembly, comprising:

(a) arranging a plurality of sliders each having a surface such that the surfaces are coplanar to each other;

(b) dispensing an encapsulation fluid comprised of a styrene polymer and an acrylate composition in a manner effective to bond the sliders without contacting the coplanar slider surfaces; and

(c) subjecting the dispensed encapsulation fluid to conditions effective for the fluid to form a debondable solid encapsulant comprising styrene and acrylate polymers.

22. The method of claim 21, wherein step (a) comprises placing the sliders on a laminate of a tape and an adhesive such that slider surfaces contact the adhesive.

23. The method of claim 22, wherein the adhesive is resistant or impervious to solvation by the encapsulation fluid.

24. The method of claim 21, wherein the encapsulation fluid is comprised of styrene polymers dissolved in the acrylate composition.

25. The method of claim 24, wherein the acrylate composition is comprised of an acrylate monomer.

26. The method of claim 25, wherein the acrylate monomer is isobornyl acrylate.

27. The method of claim 24, wherein the acrylate composition is comprised of a polyfunctional acrylate crosslinker.

28. The method of claim 21, wherein the encapsulation fluid is free from any solvent requiring removal in step (c).

29. A method for forming a slider assembly, comprising:

(a) arranging a plurality of sliders each having a surface such that the surfaces are substantially coplanar to each other;

(b) dispensing an encapsulation fluid comprised of a first polymer and a composition that is polymerizable and/or crosslinkable in a manner effective to bond the sliders without contacting the coplanar slider surfaces; and

(c) subjecting the dispensed encapsulation fluid to conditions effective for the fluid to form a debondable solid encapsulant comprising the first polymer and a second polymer prepared via polymerization and/or crosslinking of the composition.

30. The method of claim 29, wherein the first polymer is a styrene polymer.

31. The method of claim 29, wherein the second polymer is an acrylate polymer.

32. A method for patterning an air-bearing surface of a slider, comprising:

(a) applying a resist layer on an air-bearing surface of a slider, wherein at least a portion of the slider other than the air-bearing surface is encapsulated in a debondable solid encapsulant comprising styrene and acrylate polymers;

(b) removing a portion of the resist composition to uncover a portion of the air-bearing surface in a patternwise manner; and

(c) adding material to and/or removing material from the uncovered portion of the air-bearing surface, thereby patterning the air-bearing surface of the slider,

wherein the encapsulant is mechanically stable upon exposure to any fluid employed in steps (a), (b), and/or (c).

33. The method of claim 32, further comprising, after step (a) and before step (b), exposing the resist layer to photons in the patternwise manner.